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#4

## SEQUENCE LISTING

<110> RHODES, Simon J.  
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PRICE, Jeffrey R.  
SHOWALTER, Aaron D.  
SLOOP, Kyle W.

<120> GENERATION OF DIAGNOSTIC TOOLS TO ASSAY THE HUMAN  
LHX3/P-LIM/LIM-3 FACTOR

<130> 053884-5003

<140> 09/932,367

<141> 2001-08-17

<150> PCT/US00/04424

<151> 2000-02-22

<150> US 60/121,110

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<160> 113

<170> PatentIn Ver. 2.1

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 <212> DNA  
 <213> Homo sapiens

<400> 11

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 <213> Homo sapiens

<400> 12

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Ile Pro Leu Cys Ala Gly Cys Asp Gln His Ile Leu Asp Arg Phe Ile
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Leu Lys Ala Leu Asp Arg His Trp His Ser Lys Cys Leu Lys Cys Ser
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Asp Cys His Thr Pro Leu Ala Glu Arg Cys Phe Ser Arg Gly Glu Ser
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 Asp Phe Val Tyr His Leu His Cys Phe Ala Cys Val Val Cys Lys Arg  
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<212> DNA  
<213> Sus scrofa

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<213> Sus scrofa

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 <212> DNA  
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 <212> PRT  
 <213> Sus scrofa

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 35 40 45  
 Leu Lys Ala Leu Asp Arg His Trp His Ser Lys Cys Leu Lys Cys Ser  
 50 55 60  
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<210> 17  
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<210> 18  
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<210> 19  
<211> 440  
<212> PRT  
<213> *Drosophila melanogaster*

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Glu Phe Leu Leu Ser Thr Ile Pro Lys Cys Gly Gly Cys His Glu Leu  
35 40 45  
Ile Leu Asp Arg Phe Ile Leu Lys Val Leu Glu Arg Thr Trp His Ala  
50 55 60  
Lys Cys Leu Gln Cys Ser Glu Cys His Gly Gln Leu Asn Asp Lys Cys  
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Phe Ala Arg Asn Gly Gln Leu Phe Cys Lys Glu Asp Phe Phe Lys Arg  
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Tyr Gly Thr Lys Cys Ser Ala Cys Asp Met Gly Ile Pro Pro Thr Gln  
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Val Val Arg Arg Ala Gln Asp Asn Val Tyr His Leu Gln Cys Phe Leu  
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Ala Lys Gly Leu Tyr Leu Asp Gly Ser Leu Asp Gly Asp Gln Pro Asn  
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Lys Arg Pro Arg Thr Thr Ile Thr Ala Lys Gln Leu Glu Thr Leu Lys  
180 185 190  
Thr Ala Tyr Asn Asn Ser Pro Lys Pro Ala Arg His Val Arg Glu Gln  
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Gln Asn Arg Arg Ala Lys Glu Lys Arg Leu Lys Lys Asp Ala Gly Arg

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 Leu Gly Leu Asp Glu Gly Ala Ser Pro His Ser Ile Arg Gly Ser Tyr  
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 Pro Asp Ser Trp Leu Gly Asp Ser Gly Ser Thr Asn Thr Thr Ser Ala  
 385                                   390                      395                      400  
 Asn Asn Asn Ala Asn Asn Asn Ser Ser Arg Ser His Asn Asn Asn Asn  
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 Lys Cys Ala Asp Cys Gln Met Gln Leu Ala Asp Arg Cys Phe Ser Arg  
                                  35                      40                      45  
 Ala Gly Ser Val Tyr Cys Lys Glu Asp Phe Phe Lys Arg Phe Gly Thr  
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 Lys Cys Thr Ala Cys Gln Gln Gly Ile Pro Pro Thr Gln Val Val Arg

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Cys	Asn	Arg	Gln	Leu	Ala	Thr	Gly	Asp	Glu	Phe	Tyr	Leu	Met	Glu	Asp
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Gly	Arg	Leu	Val	Cys	Lys	Glu	Asp	Tyr	Glu	Thr	Ala	Lys	Gln	Asn	Asp
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Arg	His	Val	Arg	Glu	Gln	Leu	Ser	Ser	Glu	Thr	Gly	Leu	Asp	Met	Arg
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Lys	Arg	Ser	Arg	Gly	Gly	Ser	Lys	Gln	Glu	Lys	Glu	Ser	Ser	Ala	Glu
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Asp	Cys	Gly	Val	Ser	Asp	Ser	Glu	Leu	Ser	Phe	Arg	Glu	Asp	Gln	Ile
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Leu	Ser	Glu	Leu	Gly	His	Thr	Asn	Arg	Ile	Tyr	Gly	Asn	Val	Gly	Asp
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<210> 21  
 <211> 402  
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 <213> Mus musculus

<400> 21

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35 40 45  
Leu Lys Ala Leu Asp Arg His Trp His Ser Lys Cys Leu Lys Cys Ser  
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Asp Cys His Val Pro Leu Ala Glu Arg Cys Phe Ser Arg Gly Glu Ser  
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Val Tyr Cys Lys Asp Asp Phe Phe Lys Arg Phe Gly Thr Lys Cys Ala  
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Ala Cys Gln Leu Gly Ile Pro Pro Thr Gln Val Val Arg Arg Ala Gln  
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130 135 140  
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Thr Ala Lys Arg Pro Arg Thr Thr Ile Thr Ala Lys Gln Leu Glu Thr  
165 170 175  
Leu Lys Ser Ala Tyr Asn Thr Ser Pro Lys Pro Ala Arg His Val Arg  
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Trp Phe Gln Asn Arg Arg Ala Lys Glu Lys Arg Leu Lys Lys Asp Ala  
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225 230 235 240  
Gly Ser Ser Lys Ser Asp Lys Asp Ser Ile Gln Glu Gly Gln Asp Ser  
245 250 255  
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260 265 270  
Pro Ala Asn Gly Leu Tyr Ser Ser Leu Gly Glu Pro Ala Pro Ala Leu  
275 280 285  
Gly Arg Pro Val Gly Gly Leu Gly Ser Phe Thr Leu Asp His Gly Gly  
290 295 300  
Leu Thr Gly Pro Glu Gln Tyr Arg Glu Leu Arg Pro Gly Ser Pro Tyr  
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ggagccgtca	ccccgaggct	ccctcttttag	gtcggagatt	ggccttgctc	gtcgaggcaa	2160
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ccaggetgca	cccacagatg	tctgttgcca	aacagcctgc	cctccctgcc	ggagccggct	2280
ctgccagccc	cagattggga	agtctccccg	ctggagaagg	gtggggctcc	tctgagcctg	2340

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ccttgccctcc tccatcagat cctttgggaa gaagtttctg ggagatgccc gcagctgtgc 2400
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<210> 27
<211> 2070
<212> DNA
<213> Homo sapiens

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<400> 27
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<210> 28
<211> 26
<212> PRT
<213> Homo sapiens

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<400> 28
Met Leu Leu Glu Thr Gly Leu Glu Arg Asp Arg Ala Arg Pro Gly Ala
 1             5             10             15
Ala Ala Val Cys Thr Leu Gly Gly Thr Arg
          20             25

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<210> 29  
 <211> 31  
 <212> PRT  
 <213> Homo sapiens

<400> 29  
 Met Glu Ala Arg Gly Glu Leu Gly Pro Ala Arg Glu Ser Ala Gly Gly  
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 Asp Leu Leu Leu Ala Leu Leu Ala Arg Arg Ala Asp Leu Arg Arg  
                     20                    25                    30

<210> 30  
 <400> 30  
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<210> 31  
 <211> 29  
 <212> PRT  
 <213> Sus scrofa

<400> 31  
 Met Leu Leu Glu Thr Glu Leu Ala Gly Asp Arg Asp Arg Pro Gly Ala  
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 Pro Ala Ala Ala Val Cys Thr Leu Pro Gly Thr Arg  
                     20                    25

<210> 32  
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<210> 33  
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 <212> PRT  
 <213> Sus scrofa

<400> 33  
 Met Glu Ala Arg Gly Glu Leu Gly Pro Ser Arg Glu Ser Ala Gly Gly  
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 Asp Leu Leu Leu Ala Leu Leu Ala Arg Arg Glu Asp Leu Arg Arg  
                     20                    25                    30

<210> 34  
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<220>  
 <223> Description of Artificial Sequence: PCR primer

<400> 34  
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22

<210> 35  
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 <400> 35  
 ccgagtcctcg cccaagggtgc 20  
  
 <210> 36  
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 <212> DNA  
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 <223> Description of Artificial Sequence: PCR primer  
  
 <400> 36  
 atggaggcgc gcggggagct 20  
  
 <210> 37  
 <211> 20  
 <212> DNA  
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 <220>  
 <223> Description of Artificial Sequence: PCR primer  
  
 <400> 37  
 ctcggcgagc gtctgccctc 20  
  
 <210> 38  
 <211> 25  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: PCR primer  
  
 <400> 38  
 gcgaccgagc gagggccggg gccgc 25  
  
 <210> 39  
 <211> 25  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: Probe  
  
 <400> 39  
 cccggccgg gagtcggcgg gaggc 25

<210> 40  
 <211> 27  
 <212> DNA  
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 <220>  
 <223> Description of Artificial Sequence:Probe  
  
 <400> 40  
 ttccccgatg agccttcctt ggcggaa 27  
  
 <210> 41  
 <211> 20  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence:PCR primer  
  
 <400> 41  
 ggcacgagcc ccgcacgacg 20  
  
 <210> 42  
 <211> 26  
 <212> DNA  
 <213> Artificial Sequence  
  
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 <223> Description of Artificial Sequence:alpha-GSU  
 sequence  
  
 <400> 42  
 gatccggtac ttagctaatt aaatga 26  
  
 <210> 43  
 <211> 26  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence:Lhx3 consensus  
 binding sequence  
  
 <400> 43  
 gatcccagaa aattaattaa ttgtaa 26  
  
 <210> 44  
 <211> 20  
 <212> DNA  
 <213> Artificial Sequence  
  
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 <223> Description of Artificial Sequence:PCR primer  
  
 <400> 44  
 ggcacgagcc ccgcacgacg 20

<210> 45  
 <211> 20  
 <212> DNA  
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 <223> Description of Artificial Sequence:PCR primer  
  
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 tttgaagtct tggaaagtgc 20  
  
 <210> 46  
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 <220>  
 <223> Description of Artificial Sequence:PCR primer  
  
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 tgacctcgga ggagcgcgtc t 21  
  
 <210> 47  
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 <400> 47  
 tcgtccttgc agtaaacgct 20  
  
 <210> 48  
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 agcgtttact gcaaggacga 20  
  
 <210> 49  
 <211> 20  
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 <223> Description of Artificial Sequence:PCR primer  
  
 <400> 49  
 cgcaattggt cccgaagcgc 20

<210> 50  
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 <223> Description of Artificial Sequence:PCR primer  
  
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 gcgcttcggg accaagtgcg 20  
  
 <210> 51  
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 <220>  
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 <400> 51  
 cggggaagga gacctcagcg t 21  
  
 <210> 52  
 <211> 19  
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 <223> Description of Artificial Sequence:PCR primer  
  
 <400> 52  
 ggacaaggac agcgttcag 19  
  
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 <220>  
 <223> Description of Artificial Sequence:PCR primer  
  
 <400> 53  
 ctcccgtaga ggccattg 18  
  
 <210> 54  
 <211> 41  
 <212> DNA  
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 <223> Description of Artificial Sequence:PCR primer  
  
 <400> 54  
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 <210> 55



<211> 33  
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 <223> Description of Artificial Sequence:PCR primer  
  
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 <210> 56  
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 cacaggagct gggag 75  
  
 <210> 57  
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 <400> 57  
 caattaaccc tactaaagg g 21  
  
 <210> 58  
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 <400> 58  
 cggaattcat gaataatgat gatactaatt c 31  
  
 <210> 59  
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 <220>  
 <223> Description of Artificial Sequence:PCR primer  
  
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 <210> 60

<211> 32  
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 <223> Description of Artificial Sequence:PCR primer  
  
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 cgggatcctg ggaggggagg ccacaggagc tg 32

<210> 61  
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 <400> 61  
 cggaattcag tcagaactga gcgtgatcc 29

<210> 62  
 <211> 33  
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 <223> Description of Artificial Sequence:PCR primer  
  
 <400> 62  
 cgggatccaa gcagcgagag gccgaggcca cgg 33

<210> 63  
 <211> 29  
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 <400> 63  
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<210> 64  
 <211> 28  
 <212> DNA  
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 <220>  
 <223> Description of Artificial Sequence:PCR primer  
  
 <400> 64  
 acattaggta cttagcta taaatgtg 28

<210> 65  
 <211> 28

<212> DNA  
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 <223> Description of Artificial Sequence:PCR primer  
  
 <400> 65  
 cacatttaat tagctaagta cctaattgt 28  
  
  
 <210> 66  
 <211> 28  
 <212> DNA  
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 <220>  
 <223> Description of Artificial Sequence:PCR primer  
  
 <400> 66  
 acattaggta cttggcgcg ccaaatgtg 28  
  
  
 <210> 67  
 <211> 28  
 <212> DNA  
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 <220>  
 <223> Description of Artificial Sequence:PCR primer  
  
 <400> 67  
 cacatttggc gcgccaagta cctaattgt 28  
  
  
 <210> 68  
 <211> 34  
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 <220>  
 <223> Description of Artificial Sequence:PCR primer  
  
 <400> 68  
 cgggatccat gctggatcgg gatgtgggcc caac 34  
  
  
 <210> 69  
 <211> 32  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence:PCR primer  
  
 <400> 69  
 cggaattccg tcttctgctc cctggagctg tg 32  
  
  
 <210> 70  
 <211> 30  
 <212> DNA

<213> Artificial Sequence  
 <220>  
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 <400> 70  
 cggaattcta caacacctcg cccaagccgg 30  
  
 <210> 71  
 <211> 27  
 <212> DNA  
 <213> Artificial Sequence  
 <220>  
 <223> Description of Artificial Sequence:PCR primer  
 <400> 71  
 cggaattcgg aacgaggggc ccttgac 27  
  
 <210> 72  
 <211> 21  
 <212> DNA  
 <213> Artificial Sequence  
 <220>  
 <223> Description of Artificial Sequence:PCR primer  
 <400> 72  
 gatccaaaag gaaatgagag a 21  
  
 <210> 73  
 <211> 25  
 <212> DNA  
 <213> Artificial Sequence  
 <220>  
 <223> Description of Artificial Sequence:PCR primer  
 <400> 73  
 cagtgcaggt ggtacacgaa gtcct 25  
  
 <210> 74  
 <211> 25  
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 <213> Artificial Sequence  
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 <223> Description of Artificial Sequence:PCR primer  
 <400> 74  
 cagtgcaggt ggtacacgaa gtcct 25  
  
 <210> 75  
 <211> 19  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:PCR primer  
  
 <400> 75  
 ggacaaggac agcggttcag 19  
  
 <210> 76  
 <211> 18  
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 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence:PCR primer  
  
 <400> 76  
 ctcccgtaga ggccattg 18  
  
 <210> 77  
 <211> 27  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence:Probe  
  
 <400> 77  
 ttccccgatg agccttcctt ggcggaa 27  
  
 <210> 78  
 <211> 30  
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 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence:PCR primer  
  
 <400> 78  
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 <210> 79  
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 <220>  
 <223> Description of Artificial Sequence:PCR primer  
  
 <400> 79  
 cggaattcgg aacgaggggc ccttgac 27  
  
 <210> 80  
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 <212> DNA  
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<220>  
 <223> Description of Artificial Sequence:PCR primer  
  
 <400> 80  
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 <210> 81  
 <211> 28  
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 <220>  
 <223> Description of Artificial Sequence:PCR primer  
  
 <400> 81  
 cgggatcctt gatatttacc ccggaggc 28  
  
 <210> 82  
 <211> 32  
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 <220>  
 <223> Description of Artificial Sequence:PCR primer  
  
 <400> 82  
 gcgaagcttg gaactgagcg tggcttacct ca 32  
  
 <210> 83  
 <211> 29  
 <212> DNA  
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 <223> Description of Artificial Sequence:PCR primer  
  
 <400> 83  
 tacaagcttc gcgatgctgc tggaaacgg 29  
  
 <210> 84  
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 <220>  
 <223> Description of Artificial Sequence:PCR primer  
  
 <400> 84  
 tacaagctta ccatggaggc gcgcgggga 29  
  
 <210> 85  
 <211> 29  
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<223> Description of Artificial Sequence:PCR primer

<400> 85  
cccggtagca actgagcgtg gtctacctc 29

<210> 86  
<211> 19  
<212> DNA  
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<220>  
<223> Description of Artificial Sequence:PCR primer

<400> 86  
ggacaaggac agcgttcag 19

<210> 87  
<211> 18  
<212> DNA  
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<220>  
<223> Description of Artificial Sequence:PCR primer

<400> 87  
ctcccgtaga ggccattg 18

<210> 88  
<211> 28  
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<220>  
<223> Description of Artificial Sequence:PCR primer

<400> 88  
cgggatccat gctgctggaa acggggct 28

<210> 89  
<211> 28  
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<220>  
<223> Description of Artificial Sequence:PCR primer

<400> 89  
cgggatccat ggaggcgcgc ggggagct 28

<210> 90  
<211> 28  
<212> DNA  
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<220>  
<223> Description of Artificial Sequence:PCR primer

<400> 90  
 cggaattctc agaactgagc gtggtcta 28

<210> 91  
 <211> 20  
 <212> DNA  
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<220>  
 <223> Description of Artificial Sequence:PCR primer

<400> 91  
 tggtcacagc ctgcacacat 20

<210> 92  
 <211> 20  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:PCR primer

<400> 92  
 aaccactgga ttagtgactg 20

<210> 93  
 <211> 19  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:PCR primer

<400> 93  
 gaagttcagg gtcggaggg 19

<210> 94  
 <211> 20  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:PCR primer

<400> 94  
 tggtcacagc ctgcacacat 20

<210> 95  
 <211> 21  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:PCR primer



<400> 95  
 cagaaaatta attaattgta a 21

<210> 96  
 <211> 28  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:PCR primer

<400> 96  
 cgggatccat gctgctggaa acggggct 28

<210> 97  
 <211> 28  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:PCR primer

<400> 97  
 cggaattctc agaactgagc gtggtcta 28

<210> 98  
 <211> 28  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:PCR primer

<400> 98  
 cgggatccat ggaggcgcgc ggggagct 28

<210> 99  
 <211> 28  
 <212> DNA  
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<220>  
 <223> Description of Artificial Sequence:PCR primer

<400> 99  
 cggaattctc agaactgagc gtggtcta 28

<210> 100  
 <211> 28  
 <212> DNA  
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<220>  
 <223> Description of Artificial Sequence:PCR primer

<400> 100

acattaggta cttagcta taaatgtg 28

<210> 101  
 <211> 28  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:PCR primer

<400> 101  
 cacatttaat tagctaagta cctaattgt 28

<210> 102  
 <211> 192  
 <212> DNA  
 <213> Homo sapiens

<400> 102  
 tcttcggga gaggccct cctctccca gaccacagg ggcctctctg cctccagccc 60  
 caccttcccc gggagaagct ttccccaatc ccaggtctc tagatcattc tgttctcgag 120  
 tatcctgtgg aggaggcaaa aatgcctggc gcccttctc tccaagctca attctctaag 180  
 cccctcaggg tc 192

<210> 103  
 <211> 21  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:PCR primer

<400> 103  
 caaccgtgt cccgcactct t 21

<210> 104  
 <211> 21  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:PCR primer

<400> 104  
 gaaagttcgg gactggagag t 21

<210> 105  
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 <212> DNA  
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<220>  
 <223> Description of Artificial Sequence:PCR primer

<400> 105  
 cagtgcaca acctcactca 20

<210> 106  
 <211> 20  
 <212> DNA  
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 <400> 106  
 tacgaggtga cccagaactt 20

<210> 107  
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 cctggccttg gtgattgtga 20

<210> 108  
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 tttcagacca ggaaaggtgg 20

<210> 109  
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<210> 110  
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